

In the June 1977 APRO *Bulletin* we published an article entitled "The MUFON Analysis of the Sedona Photograph: A Rebuttal" by J. E. Herr. An advance copy of the *Bulletin* was forwarded to the director of *Ground Saucer Watch* with a letter which read, in part:

"Dear Bill:

The enclosed advance copy of the APRO *Bulletin* (Vol. 25, No. 12) carries an article by Jan Herr that makes several serious representations bearing on the validity of your photo analysis theories and procedures. In recent months this article has been circulated quite widely via the "underground" which seems to place you at a disadvantage since such a procedure allows you no opportunity to respond to the various criticisms put forward. For this reason, APRO decided to publish it and make a reasonable amount of space available for any response you deem appropriate."

In ensuing correspondence, Mr. Spaulding opted not to respond directly to points raised by Mr. Herr saying that he did "not want to start a column in the APRO *Bulletin*". He chose, instead to submit a technical paper describing computerized photo digitizing techniques. [Excerpts from that paper which apply to points raised by Mr. Herr are published separately in this issue.]

He did make one exception, as follows:

"One of Herr's absurd claims, which is very illogical, is his analogy of photographing a distant satellite, traveling hundreds of miles in space at 18,000 MPH to an 'object' traveling the same speed at a relatively close distance, with a shutter speed of 1/60th a second ($\pm 50\%$). It can be proven photographically that with this shutter speed/camera, it is physically impossible to photograph a (sic) image traveling at the foremention (sic) speed and distance factors. It is additionally erroneous to believe, as Mr. Harder states in his evaluation that the 'image' stopped and started in its vertical climb during the sub-second exposure time. If one follows this type of logic, once could paint a bullet white, fire it upward, and photograph the bullet as it departed from the muzzle, with results similar to the Sedona, Arizona photograph, because fast moving orbiting satellites can be photographed."

[Perhaps it is more to the point to note that bullets in flight are photographed routinely as anyone who has watched scenes involving tracer fire in war movies can testify. Of course, tracer bullets are not painted white - they are luminous, which is what Dr. Harder proposed for the Sedona object. Motion picture photography at 16 frames per second has an individual frame exposure time in the same order of magnitude as that of the Sedona photo. Ed.]

In a way it's disappointing to note that the G.S.W. paper forwarded by Mr. Spaulding supports rather than refutes Mr. Herr's criticisms. Those of us who hoped that a sure fire method of analysing UFO photos had been developed will have to wait a little longer.

The basic theory and practice described in the G.S.W. paper are sound - in fact it appears that the major points of issue raised by Mr. Herr apply only to instances where Mr. Spaulding departed from the rules set forth in his own organizations procedures.

In a closing paragraph of a letter to APRO dated Sept. 13, 1977, Mr. Spaulding says, "In finalizing the argument over the Sedona, Arizona UFO photograph, we still maintain that the results are due to an exposure of an **external** reflection, not an internal lens flare . . ." To this extent he seems to have been won over by Mr. Herr's arguments and to have forgotten that his initial conclusion as published in the MUFON *Journal* was, "The Sedona photograph is a lens reflection . . ."

Mr. Spaulding deserves credit for calling attention to the computer as a potentially useful UFO research tool and Mr. Herr deserves credit for reminding us that there is no whetstone better than dialog for sharpening any research tool. The whole research field benefits from this kind of interplay. The MUFON *Journal* for June 1977 has also published the Herr paper and followed up with the announcement of a program to have technical papers reviewed by qualified consultants before publishing. Bravo!

* * * * *

PHOTOGRAPHIC ANALYSIS UTILIZING COMPUTER IMAGE PROCESSING (Excerpts)

Submitted by W. H. Spaulding, G.S.W.

The initial procedure, when performing computer aided photographic analysis is digitization of the picture. This is done by scanning the picture with a device that measures transmission (if a negative) or reflection (if a positive) as a function of position. The data thus obtained are relative photographic densities, (logarithms of brightness ratios) and the positions of these densities. The scanning process is limited in its capabilities by three independent types of resolution: the most important is RESOLUTION ELEMENT SIZE (RES). This corresponds to the smallest circular or square area for which density can be recorded. All the light from an RES is added together so that variations in reflection or transmission within an RES are "lost" information.

After the picture, or a section of the picture, has been scanned, the computer has stored in its memory a digitized version of the scanned area. The digitized version is like a checkerboard of squares called picture elements, or pixels.

After the picture, or a segment of the picture, has been digitized, certain software programs can be called upon. One of the most straight-forward is the color-contour program which simply assigns colors to certain ranges of densities. This is useful for the analysis of two-dimensional outlines of objects where brightness contrasts are large as at

(See Analysis - Back Cover)

the apro bulletin

VOL. 26, NO. 2

AUGUST, 1977

DOG DIES AFTER UFO INCIDENT

Ghost Riders Through the Gates of Hercules

by Dennis Leatart
Field Investigator

In the summer sky there is an object in the constellation Hercules, known as M13. The object is a star cluster some 27,000 light years away. Astronomers believe that in the central portion of this cluster lies one of the universe's great mysteries—a black hole. Satellites, probably already launched, will try to confirm this by detecting X-rays in very large direction geiger counters.

M13 has proven to be a very attractive object to observe for other reasons. Its position in the constellation Hercules during summer months makes it attractive for astrophotography both by amateurs and professionals alike. It was for this reason that my attention was drawn to this object several times during the summer.

Using a new richest field telescope (focal length=17 in.) and a 12.5 mm Orthoscopic Eyepiece, M13 was a beautiful cloudy sight under 36 power magnification.

Then it happened, unexpectedly, not one warning was given. The time was 9:35P.M. (PDT), August 18, 1977. The observation took place in Crestline, California, under clear skys at an elevation of five-thousand feet. Something was crossing below M13! Moving rapidly in a straight line covering the full width of my eyepiece diameter in approximately 2-3 seconds, I followed it carefully. Since the telescope was easily maneuverable in any direction, I continued to track its path as it proceeded from the South to the North. To add to the excitement, the object was blinking on and off every 1 sec., or as closely as I could approximate. I lost the object over a hill after following it through about 60 degrees of arc. The object was in an apparent orbit, had an apparent magnitude of about 7-8, appeared to be pointed or tapered in the front, and flashed white (definitely not a strobe), and was not visible with the naked eye. Full time of the observation lasted less than a minute. It never varied from its apparent orbital path.

My impression was that they object was a satellite of some kind. However, its speed seemed too rapid, and I have never seen them blink, unless the object was spinning and the reflective surface caused the sunlight to appear to be a beacon of some kind.

The next few nights were unfit for viewing, but I was determined that I would see this object again. At home in Oxnard, this is exactly what happened, not once, but several times all in and around M13 in Hercules. The dates and times are as follows (time is in PDT).

(See Riders - Page Three)

Angel Maria Tonna is a 52-year-old rancher who owns 3,000 acres of farm land 15 kilometers (9 miles) south of Salto, Uruguay, a city of 40,000 people located on the Uruguay River. The ranch is primarily a cattle ranch and Mr. Tonna, 2 sons, 19 and 22 years of age, and 11 farmhands, tend 730 head of cattle and numerous sheep.

The Tonna family led a relatively uneventful life in their rural home until February and March of this year when Tonna, the two sons, Mrs. Tonna, their 15-year-old daughter and the farm hands began seeing UFOs in the area. They had approximately a dozen sightings during that time.

The most interesting incident took place at about 4 a.m. on February 18 when Tonna and his foreman, Juan Manuel Fernandez, were driving about 80 cows into the barn for milking. When Tonna gets up in the morning, the first thing he does is to turn on the generator, which powers approximately 20 lights in the barnyard area.

On the morning in question, Tonna said, he was bringing the cows in at about 4:10 a.m., when all of the lights went out, whereupon a bright light appeared on the east end of the barn (the end farthest from him) and he was able to make out the shadow of the barn. Tonna originally thought the power outage was a short circuit and he kept hay in that part of the barn so he thought it had somehow caught fire.

Tonna jumped over the fence and ran toward the source of the light at the end of the barn. His dog Topo (Dunce in Spanish) who was a constant companion during Tonna's walks around the ranch, was with him. "Then I heard a noise" he said, and he saw a fiery disc like two plates placed face to face hovering a short distance above the ground behind the barn. He stood and watched the object until his foreman told him the cows were running away, then he noticed that the cows "were going crazy" and all the dogs were barking.

At this point, the disc began to move in a southerly direction, breaking off the branches of a tree near the barn. The object displayed a rocking motion as it flew, and stopped and hovered over some trees about 100 yards south of the barn at an altitude of about 60 feet. It stayed there only a moment, then moved east another 75 yards or so, and stopped above a concrete bath that the cows were forced to walk through to disinfect them. By then, Tonna and his dog, a 60-pound black and brown police dog, had run back to the west side of the barnyard and climbed back over the fence. The light from the object illuminated the whole barnyard, and Tonna said he felt attracted to it. Tonna and Topo walked a few feet toward the UFO and it made another turn and began moving toward them. It came to a stop about 60 feet from them and Topo ran toward

(See Dog - Page Three)

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McLean has had considerable experience in industry, having been employed by the California Oil Company, Texaco, Inc., Santana Petroleum Corporation and Amoco Petroleum Corporation.

He is a member of the Phi Theta Kappa Honorary Society, and was awarded the National Science Foundation Research Assistantship for work toward the PhD in Geology which he obtained in 1968.

Dr. McLean is currently Associate Professor of Geology at the Virginia Polytechnic Institute and State University at Blacksburg, Virginia.

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Book Review

Norman Avery, *"Time Out For Tomorrow"*,
 Published in 1977 by T.H.A.R. Institute,
 Raynesford, Montana 59469

This is not a book about UFOs; it is a book about the future. But if UFO's come from a more advanced planet, then, in a certain sense, they are bringing some of the future with them. If we are to indulge in appropriate speculation about UFO's, it is important to know what is technologically possible. This book won't provide all such information desired by an avid UFO speculator, but it will help.

Norman Avery is more of a people's futurologist than a professional Hudson Institute type, having gained his credentials by lecturing to high school assemblies. He is a communications specialist with an intense interest in science and technology. He transfers this interest fairly well to the reader, but the transfer will be more complete if the reader is a bit naive and not very skeptical — which is a pretty good description of Avery himself.

For us science fiction buffs, future world is indeed an exciting place. It contains pocket-sized video phones, for example, that will allow you to contact anyone in the world at any time and place. (But, come to think of it, there are times when I despise being interrupted by the telephone; perhaps future world will have pocket-sized answering devices to attach to the video-phone.) The ability to store information will be tremendously expanded; you may carry the Encyclopedia Britannica in your vest pocket on a few cards prepared holographically. Computers with bubble memories will overshadow today's pocket calculators. Communications will continue to improve; consider the transmission of 80,000 TV channels at once! Star Wars has shown us the possibilities for three-dimensional holographic movies and even television. The energy supplies that run our transportation and other systems may use hydrogen, fuel cells, wind, and most exciting of all, fusion, which theoretically could provide almost unlimited energy for billions of years.

Perhaps our plant will be orbited by rotating factory-cities in the sky, powered by fusion and solar energy and containing super technological agriculture

(See Review - Page Four)



Dewey M. McLean, Ph.D.

New Consultant

The staff is proud to announce the addition of a new Consultant to our Scientific Consulting Staff. Dr. Dewey M. McLean has extensive teaching experience and is a consultant to the Paleontology and Stratigraphy Branch of the U.S. Geological Survey. Dr.

Dog

(Continued from Page One)

it to attack it and protect Tonna, but stopped and sat on a small mound about 15 feet from the object and looked up at it and howled.

When the object started moving toward Tonna, he noticed six beams of light "like small wings" - three on each side. At that point, Tonna said, he felt electric shocks which went all through his body and a very intense heat hit him. He flung his arm up over his face to shield his eyes. He said he felt attracted to the light and couldn't move. "I don't know if I couldn't move or didn't want to," he said.

After several minutes the object began moving away, turning from its original bright orange color to red. It increased its speed as the color changed and when it got to the forest about a half a mile to the south, it was out of sight.

When the object left, the generator started running again but didn't produce any electricity because the wires were burned out. The whole incident lasted about 10 minutes and Tonna's 19-year-old son, who is a second year veterinary student at the University in Salto, witnessed the whole episode from the house. The farm workers normally rise at 4:30 a.m. and those who were awake at the time saw only a bright light in the barnyard.

Following the incident the dog would not eat or drink. He moved around normally but stayed in the house all day, which was unusual. On the morning of the third day after the incident, Topo was found dead on the same mound where he had sat and howled at the disc.

An autopsy was performed at the ranch by a veterinarian who teaches at the North University in Salto and he was assisted by Tulio Tonna and three other second year veterinary students. The Doctor will not discuss the case but he did let Tulio make a copy of the autopsy report which said, in part:

"The hair along the animal's spine was sticky but completely hard. The fat under the skin was found on the outside. The fat is normally solid, so to get to the outside it had to be melted and come through the pores. Once it was outside it solidified again. The animal was exposed to a very high temperature that can't be reached naturally by the dog."

"All the blood vessels had been bleeding very much and all the capillaries were broken. The rupture of the blood vessels was caused by an increase in temperature that couldn't be natural."

"The liver, normally dark and red, was completely yellow, caused by a high fever. All the blood vessels were yellow too."

"With all the blood vessels broken, the animal started bleeding inside and lost so much blood that 48 hours later the amount of blood he had circulating was insufficient and he died of a heart attack."

"When we took the skin off the dog, we didn't see any marks. He didn't have any bruises or anything - nor was the hair burned. The conclusion was that something very hot caused this."

On the morning after the incident, the underside of

Mr. Tonna's right arm, which he had put up to shield his eyes, began hurting. Several days later, Dr. Bruning Herrera, a friend of the Tonnas, and a physician in Salto, paid the Tonnas a personal visit. Tonna confided that he wasn't feeling well and Herrera examined him. He found that the underside of Tonna's right arm was very red and, after being told about the UFO incident, decided the irritation was caused by some kind of radiation. He suggested that Tonna go and have a special examination but Tonna would have had to go to Montevideo, 300 miles away, and he didn't want to take the time. Instead he treated himself with some home remedies. Eventually the ailing arm cleared up with no lingering after-effects.

Robert Barrow, P.O. Box 14, Syracuse, NY 13215, is compiling a detailed research file on the 1956 United Artists motion picture, "U.F.O.," and would be happy to hear from anyone who wishes to contribute or sell at moderate cost material relating to the movie. Please query and describe first.

Riders

(Continued from Page One)

August 23, 1977 in Oxnard, 9:17 PM — Object was moving from North to South covering 3 degrees in 7 seconds — bluish this time, magnitude about 6 heading in the opposite direction from North to South.

August 24, 1977—in Oxnard, several objects moving from North to South, one as bright as the star Vega, 28mm eyepiece used. One was blinking. Also see again at 9:15PM, this one was traveling Southwest to Northeast, star-like in appearance, and traveling at about the same speed as the other.

August 25, 1977—8:26pm, again in M13 this time two objects going from South to North (same speed) spaced about 3 minutes in time apart.

September 1, 1977, 9:53PM—very faint object traveling north to south, again in M13.

In fact, every time it has been clear, and if I point my telescope at M13, I see these satellite-like objects. Sometimes, I must observe M13 for a half hour or more, but they have yet to disappoint me. I have taken some photographs and hopefully they will reveal these "Ghost riders" in Hercules.

I have also informed our amateur astronomy group of what has been happening, but none yet have been able to confirm these sightings. One astronomer suggested the possibility that they may be killer satellites.

If anyone has seen these objects in M13, I would like to know about it as soon as possible, and once and for all close the door on the Ghost Riders in Hercules.

Review

(Continued from Page Two)

that will make them almost self-supporting. The human body may be rebuilt. Avery talks about feed-back controls for artificial limbs in paralyzed individuals, but he doesn't mention that an artificial eye for the blind has been proven in principle at the University of Utah in Salt Lake City.

Avery winds up with chapters on super technological crime and super technological ways to detect it, homes of the future, pills that will aid memory (although they won't give you a complete education), advances in food production, and the search for extra-terrestrial life. This last chapter could be of interest to UFO buffs, but it is strictly the establishment approach: radio telescopes, voyager spacecraft to Mars, etc.

Although I enjoyed the book, I couldn't help being skeptical. I can read good science fiction (e.g., Robert Heinlein writing in the 1950's) without being on the defensive. I know the author is dreaming; he's not trying to tell me that it will really happen that way. In reading Avery's book, I found myself constantly jotting such comments in the margin as "baloney!" or "horse manure!".

I was also distracted by the poor condition of the text. For example, a good copy editor might have been able to tone down some of Avery's continual use of superlatives. It is difficult to maintain a level of induced tension throughout an entire book. Certainly, a good copy editor would have crossed out many of his commas and added others where they were needed. Commas appear, as it were, out of nowhere!

There are also several errors of fact. It was a shock to learn, for example, that Schiaparelli wrote about the canals of Mars in 1836 when he was only one year old (page 81 — he really wrote in 1877), and that television reached 1.5 billion people in 1947 (a typo on page 1)! I was disturbed by volts being sent through cables (page 41) and by many statements about biology that were patently naive. For example, Avery assumes that we can grow more plants simply by giving them continuous light. Thanks to the biological clock (a concept with fascinating implication for the future), some plants will grow best only when they have an extended period of darkness during each 24-hour cycle; you can kill a tomato plant by giving it more than 18 hours of light per day.

So, if you want to get involved with Avery's book, enjoy it, and don't be put off by my negative remarks — but take it all with a grain of salt.

Frank B. Salisbury
Utah State University

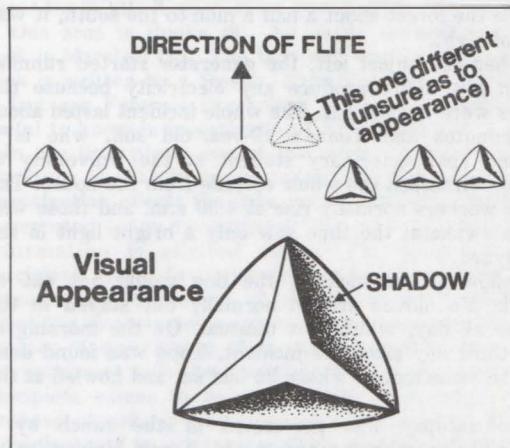
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Eight Objects Over Phoenix

On Wednesday, September 21, 1977, Jim Ray, Jr., 17, was lying on his back in the front yard of a friend's discussing the events of the summer. At approximately 8:40 p.m. (established later) Ray saw a flash in the sky

which he assumed was a meteor despite the fact that it didn't leave a trail. About 10 seconds later he saw another flash in the same position. Another 10 seconds passed and he saw the third flash and called his friend's attention to what happened. Together the two saw five more flashes at 10-second intervals. They discussed the flashes, then Ray inquired about the time as he was supposed to be home by 9 p.m. The two got up and walked to the house and read the time off the living room clock through the window.

It was 8:45 so they went back into the yard. At approximately 8:47 Ray spotted a "line" of objects flying overhead. There were eight objects in formation (see illustration). Ray said that although they had no lights or glow they were clearly visible as they reflected the city lights. While they watched, 3 of the objects passed in front of the moon giving them a very clear view of their outline.



During the observation Ray said they saw no smoke or vapor, no lights, nor did they hear any sound. The objects did not maneuver and although observed for only 6 seconds, both of the witnesses got a good look at them. After the three objects transited the moon the whole disappeared from sight. Their speed and lack of navigational lights and sound negate the possibility that they could have been mundane objects. Although it cannot be established with certainty, it is assumed by the witnesses and investigators that the initial flashes were somehow connected with the objects seen later.

The sky was clear, no clouds, wind light and variable. The objects were first spotted at 60 degrees elevation in the north and were last seen at 45 degrees in the south.

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UFO Over New Mexico

We are indebted to Field Investigator Bobbie Wolf for the following report:

Location: Lovington, N.M.

Date: September 30, 1976

Time: 6:40 p.m. until 7:40 p.m.

I had left the Lovington office of the First National Bank of Lea County after 6:30 p.m. I drove West on Avenue A for some four blocks before I noticed a very brilliant, blue-white light in the sky about 45 degrees above the horizon. I drove some eight blocks to the house of a friend I was to meet for dinner, drove into her drive, and got out of my car to get a better view of this unusual "light". The air was clear, there being only a few wispy, gray clouds about 25 degrees above the horizon. There were no trees or buildings to obstruct my view. Pasturelands lie to the West of my friend's house, and the city is to the East. I had first thought the light might be Venus, and that it seemed particularly bright due to atmospheric conditions; also, there might have been some distortion due to the windshield of the car. When I stepped from the car, however, the "light" appeared as large and brilliant as when I had first seen it. It did not appear to move, and did not "twinkle".

Since I was late for my appointment, I went on into the house in a minute or two. My friend, Mrs. Merle Arledge, and I visited for 10 to 15 minutes before we left to go to dinner. I was curious to see if the "light" were still there. When I saw that it was, I called her attention to it, and asked if she had a pair of binoculars. She said she used to have a pair at her place of business, a ladies ready-to-wear in downtown Lovington. She was impressed with the size and brilliance of the "light", and stated that she had never seen anything like it before. We drove to her store, and obtained the binoculars. I finally had the presence of mind to look for Venus, and located it to the South and lower on the horizon than the "light". Venus appeared to be $\frac{1}{2}$ to $\frac{1}{3}$ the size of the "light", and not as brilliant. Through the binoculars, the "light" seemed to have a solid, spherical core with a halo of flames around it. Merle and I took turns looking at this object for some five minutes, and agreed that it was quite unusual, and that we ought to try to tell some more people about it. We decided to go into the store and use the telephone. I tried to call a friend, Hulda Heidel, for she and I had discussed unidentified flying objects previously. She did not answer. I then called the editor and publisher of the Lovington *Daily Leader*. There was no answer at his home nor at his office. I then called my mother-in-law, Mary Lois Neal, in Hobbs (which is located approximately 22 miles south of Lovington). She has followed UFO activity since the late 1940's, is knowledgeable about astronomy, and owns two sets of powerful binoculars. She was home and said she would go outside and look. Mrs. Arledge tried to reach one of her neighbors, but there was no answer. Then she called her son, who lives in Farmington, N.M. She reached him, and while she was visiting

with him, I went back outside with the binoculars and looked at the light. I could not detect that it had moved. It was still very large and brilliant, and although it looked like a core of white, with a halo of flames, it was not blinking or twinkling. The moon was in the South, it was a half-moon, and through the binoculars the craters were extremely clear.

By this time it was approximately 7:30. I went back into the store, Merle finished her call (her son said the "light" was not visible in Farmington), and I tried once again to reach Hulda Heidel. She did not answer. We decided to go on to dinner. When we left the store and walked to the car, we decided to take one more look at the light through the binoculars. Merle commented again that she had never seen anything like it, and agreed that it was two or three times larger than Venus, and more brilliant. She was looking through the binoculars, and I was just staring at the "light" when I noticed its color change to fiery orange. Merle noticed the change in color at nearly the same time I did, for she exclaimed about the color, and handed the binoculars to me. With the glasses, the "light" looked like a "sun" in miniature. As we watched, it began to diminish in size (not color). Within 60 to 75 seconds (a guess) it had shrunk to about half the size of Venus. At that time, it became blue-white in color again, and during the next few minutes, it steadily diminished in size to a mere speck. I had noticed that after its color had changed from orange to blue-white, there was no longer a "halo" effect around it; it appeared to be a slightly flattened sphere. We then got into the car and drove to the restaurant, and in the 3 or 4 minutes it had taken to drive there, it had become a dot of light scarcely visible without binoculars. When we came out of the restaurant about an hour later, there was no sign of the "light".

When I returned to Hobbs I phoned Mrs. Mary Lois Neal. She stated that she had seen the light in the West about 7:15 p.m. (right after I had called her) and that she had immediately fixed its position relative to Venus. She also had noticed the change in color to fiery red-orange, and then the subsequent diminishing in size and the change back to blue-white. She stated that she did not think it could have been a planet, a weather balloon, nor a new star. She said that after it changed color, it appeared to move due West, away from her, at a very high rate of speed. She observed that planets do not change color, nor do they shrink, and if they appear one evening they appear the next and the next. Balloons do not remain in a fixed position, and they do not change color and shrink. Stars do not suddenly appear, and then disappear. Meteors move quickly through the heavens; they cannot "pause" for an hour or so.

The light did not reappear on subsequent nights. The full names of the witnesses:

Merle Arledge. She has been a businesswoman in Lovington in the ready-to-wear business for more than twenty years.

Mary Lois Neal. Mrs. Neal is a widow, a housewife, a graduate of Texas Tech University in Lubbock, Texas, and an acknowledged artist. She is also a (See *New Mexico* - Page Six)

New Mexico

(Continued from Page Five)

musician. She has kept a scrapbook on UFOs for nearly 30 years.

I am a Trust Officer for First National Bank of Lea County. I graduated from Stanford University in California with a B.A. in International Relations, cum laude. I am a member of Phi Beta Kappa. I graduated from the Southwestern Graduate School of Banking at SMU in Dallas, Texas, Trust Major, writing a thesis with distinction. I have worked as an office manager for a life insurance company, and as office manager for an oilfield dirt contracting firm. I have two sons, 15 and 16 years of age. I have never before seen a UFO, but have done a substantial amount of research on UFOs during the past three years.

Sincerely,
Rita R. Neal

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Eyewitness Testimony And Its Problems In UFO Investigation

by Ron Westrum, Ph.D.

It often seems that many of the best UFO investigators are people who "fly by the seat of their pants," make decisions based on intuition, and generally just seem to be lucky. But the great majority of us are not particularly lucky, have intuitions which work only occasionally, and often are at a loss as to what to think. It is to aid such investigators, who have to think about the process of investigation, that this somewhat diffuse essay has been written.

THE BASIC PROBLEM

The Condon Report (1) contains a very interesting chapter by William Hartmann, entitled the "Process of Perception, Conception, and Reporting." Anyone who is just starting to do UFO research is advised to read, and re-read this chapter. Hartmann argues, from a study of reports of satellite re-entry, that human testimony about anomalous events is often worthless. When one digests Hartmann's chapter, one may well be disposed to agree with him. It is certainly true that witnesses of meteors often give entirely erroneous reports of how far away the meteor was. (2) More evidence of the unreliability of testimony comes from the field of aircraft investigation, whose practitioners come as close to an ego-ideal for the UFO investigator as it is possible to come. (3) After reading about how bad people are at perceiving meteors and aircrafts, both of which are comparatively well-known, the mind boggles at the use of the same witnesses for the investigation of the unknown. Especially since there are so many instances in which hallucinations might yield a plausible explanation. (4) What then are we to

do? Is eyewitness testimony all the same? Is there some way good and bad testimony can be sorted out?

A WAY THROUGH THE MAZE OF TESTIMONY

In an earlier series of articles by Richard F. Haines (5) some problems of visual and temporal perception were treated in a rigorous way. What we are about to discuss is hard to subject to rigor in the same way. It is, nonetheless, important to know. The question at hand is what has been learned in the field referred to as *Forensic Psychology*, the use of psychology to aid the law in interpreting testimony. Unfortunately this field was in its heyday earlier in the century, and relatively little has been done since. (6) In many ways the best introduction is still the old book by Hugo Muensterberg, *On the Witness Stand* (7). Those who have access to larger libraries and can read French may prefer the much more detailed book by Varendonck (8). A good short introduction to problems in this area is Rouke (9). An easily accessible short book is Marshall (10). The best and most useful recent book is written by a Swede, Arne Trankell (11). What in fact can *Forensic Psychology* tell us that would be useful to know in investigating UFO sightings?

In the first place, one of the useful lessons of this literature is that it recalls to us that the process of investigation affects the data we get. When a sighting is reported to an investigator, the way in which the information is elicited affects the answers the percipient gives. In particular, study after study has demonstrated the effect of suggestion on testimony. What the investigator suggests to the percipient in the process of questioning often strongly influences what the percipient tells the investigator and even what the percipient comes to believe actually took place. The process of asking questions is a process by which percipient and investigator make a decision about what took place. The information the percipient has can best be obtained through letting the percipient, the first time through, simply tell his story without any reaction on the part of the investigator. This, of course, is hard to do completely; some kind of feedback is expected. But at least the first time through, the less feedback the better, because studies have generally shown that uninterrupted narration produces more accurate testimony than that given under cross-examination. This is contrary to what viewers of *Perry Mason* have come to believe, but it must be remembered that on *Perry Mason*, the purpose of cross-examination is not generally to elicit information but to expose deceit. In actual courtroom practice cross-examination is frequently used to elicit information, as it is in UFO research. Frequently there is no other way to find out about aspects of the sighting which the witness has not volunteered. Yet information elicited by cross-examination, though frequently more detailed, is usually also less accurate. Again, what goes on in cross-examination, no matter how friendly, is a decision process participated in by both percipient and investigator, and it is very hard for the questioning process itself not to affect what the percipient remembers.

A second lesson modern psychology teaches is that seeing is a complicated process in which the percipient
(See *Eyewitness* - Page Seven)

Eyewitness

(Continued from Page Six)

uses cues to make decisions about what he is seeing. (12) When we "see" a luminous dot in the night sky going 20 miles per hour, we have to have made decisions about what it is, how far away it is, and so forth. Furthermore, the same dot may be seen by different observers as "a plane", "a satellite", "a meteor", or "a UFO". The important point is that the investigator is interested in the cues, not the decision the percipient made about them. The more that one can find out what information, cues, the percipient had available to him, the better off the investigator is. One way of retrieving this information is to ask the percipient why he thought the object was 100 feet up, going 2000 mph, or why he thought it was pulsating (Note: an airport beacon which rotated might be seen by a naive observer as a "pulsating" source). The more awareness the percipient has about this perceptual decision-making process, the better he is likely to be as an observer. In particular, the ability to criticize, question, and test one's perceptions during the sighting is a very good sign that the witness possesses this important "critical ability". (13) Whether this critical process is successful of course depends on the perceptual sophistication of the observer relative to the stimuli presented to him. Even a well-educated person may not be familiar with the Autokinetic Effect, which makes stationary targets seen at night near the horizon seemingly zoom around. (By the way, the easiest way to control this illusion is by training a telescope or transit on the object; if it really is stationary, it won't move in the telescope's field, even though with the naked eye one can still "see" it move.)

Education poses another problem. While it may make one more sophisticated about what one sees, it is no guarantee of critical ability. One study (14) has shown that middle class people are better at describing disasters: they are more articulate, coherent, and more able to see things from another perspective than lower-class people. But at the same time, they also can over-interpret what they see, and describe it in sophisticated technical terms which may disguise failure to look critically. Puzzlement over details of the sighting is a much better indicator of critical ability than misplaced confidence.

Another lesson that psychology teaches is that what people see is conditioned by what they expect to see. The psychologist F. C. Bartlett, in a book that has since become a classic (15), shows that memory of an event is often affected by an effort after meaning. In remembering something, we often "correct" what we saw so that it makes more sense. In this "correction", however, not only is information lost but some of what was actually seen (but "crazy") is transformed into what we feel it would have made more sense to have seen. The communication process involved in reporting is likely to introduce further requirements of "making sense"; after all, communication is not only the reporting of information but also the negotiation of our mutual identities: I want you to think I am an intelli-

gent, perceptive person. So what I tell you is going to sound as sensible as I can make it (perhaps I have to impress myself, too). (16) The import of all this is that the accounts we get of what people have seen are going to be affected by 1) what people expected to see, 2) by what it would be sensible to have seen, 3) what can be expressed to someone else about what one has seen. One almost inevitable problem is that perceptual accounts are likely to change as they are re-told, and seldom does one get to a witness before the story has been told four or five times.

CONCLUSION

These all too brief remarks can serve only as an indication of the kind of things that one can learn by consulting the references I have listed. There is more that one could say and I hope to have the opportunity to do so at some time in the near future. (17) I would like to make one point here, however, in parting. That is, that eyewitness testimony can be very useful — but only to the degree that one is aware of its limitations, and the forces that are likely to produce distortions in it. The challenge presented by articles like Hartmann's has not yet been answered; perhaps it is not answerable, but I doubt this. But if one does not pay attention to the problems of testimony, then one can be sure that Hartmann's remarks are all too relevant.

FOOTNOTES

1. University of Colorado, *Scientific Study of Unidentified Flying Objects*, Bantam Books, New York, 1968.
2. See for instance, H. H. Nininger, *Find a Falling Star*, Paul S. Eriksson, New York, 1972, at 76 & 190.
3. "What They Thought They Saw", in Stephen Barley, *Aircrash Detective*, Hamish Hamilton, London, 1969. (This was published under a different title in this country, but I don't know what it was.)
4. Graham Reed, *The Psychology of Anomalous Experience*, Houghton Mifflin, Boston, 1974. The problem that the author does not attack is what happens when a non-hallucinating observer views an object that is itself anomalous.
5. Richard F. Haines, *A.P.R.O. Bulletin*, pp. 7-8 July-August 1974, pp. 7-9 November-December 1974, pp. 4-6 May 1975, p. 6 October 1975, pp. 5-6 April 1975.
6. See however Robert Buckhout, "Eyewitness Testimony", *Scientific American* 231 #6 (December 1974), 23-31.
7. H. Muensterberg, *On the Witness Stand*, Doubleday, Garden City, 1915.
8. Julien Varendonck, *La Psychologie du Témoignage*, A.D. Hoste, Gand, 1914.
9. Fabian Rouke, "Psychological Research on Problems of Testimony", in *Journal of Social Issues*, 13, #2 (1957), 50-59. The whole of this issue of JSI is devoted to problems of witness and testimony.
10. James Marshall, *Law and Psychology in Conflict*, Doubleday, New York, 1969.
11. Arne Trankell, *The Reliability of Evidence*, Beckmans, Stockholm, 1972. It can probably be obtained through foreign booksellers such as Blackwells, Broad St., Oxford OX1 3BQ, England.

(See *Eyewitness - Page Eight*)

Eyewitness

(Continued from Page Seven)

12. Jerome Bruner, "On Perceptual Readiness", *Psychological Review*, 64 (1957), pp. 123-152; reprinted in Jerome Bruner, *Beyond the Information Given*, Norton, New York, 1973.
13. See the discussion of critical ability in Hadley Cantril, *Invasion from Mars*, Harper and Row, New York, 1966.
14. Leonard Schatzman and Anselm Strauss, "Social Class and Modes of Communication", *American Journal of Sociology* 60 (1955), pp. 329-338.
15. F. C. Bartlett, *Remembering*, Cambridge University Press, Cambridge, 1932.
16. An extreme form of this behavior is shown in Jeff Coulter, "Perceptual Accounts and Interpretive Asymmetries", *Sociology* 9 #3 (September 1975), pp. 385-396.
17. Richard Haines is editing a book to be titled *UFOs and the Behavioral Scientist*. Two of the chapters in this book, one by myself and one by Dr. Roger Shepard, are directly relevant to the problems discussed here. The entire book of course bears on the general problem of witnesses.

Carlos Alberto Diaz Was a Hoaxer

By Roberto Enrique Banchs
and Richard W. Heiden

Investigation by one of the authors (Roberto Enrique Banchs) for the Centro de Estudios de Fenomenos Aereos Inusuales (CEFAI) of Buenos Aires has shown that the Argentine abduction case reported in the *APRO Bulletin* of March 1975 was a hoax, as the events could not have occurred as the witness claimed.

To briefly summarize the incident, Carlos Alberto Diaz said that after getting off work in Bahia Blanca at 3:05 a.m. on Sunday, January 5, 1975, he walked seven blocks to the bus stop at Plaza Rivadavia, where he took the bus to his home city of Ingeniero White, arriving at 3:30. Diaz was 100 meters (330 feet) from home, walking on a deserted street, when, just before 3:50, he saw a bright light, and then became paralyzed before being pulled up off the ground and then fainting. Diaz came to in an empty ovoid. After 15 minutes three humanoids appeared, who proceeded to hold down the witness, and pull out some of his hair. Diaz again fainted, and woke up at about 3:00 p.m. near Buenos Aires (400 miles away), lying off the side of a highway. He hitchhiked to the Railway Hospital, where he arrived at 4:15. The doctors were impressed by his story when Diaz showed them the morning Bahia Blanca newspaper, which indicated that he had been there not too many hours before, and they gave him a thorough examination. (Some of these details vary from

those in the *Bulletin*; several versions of the story have been published.)

Investigation revealed the following:

1. The abduction site, on Daniel de Solier Street, is always busy, even at that time, yet Diaz said he saw no one around. Also, house-to-house inquiries found that no one in the neighborhood had noticed anything unusual, nor had any watch dogs acted up.

2. The bus leaves Bahia Blanca at 3:30, and takes 25 minutes to get to Ingeniero White, whereas Diaz said he arrived at Ingeniero White at 3:30, only 25 minutes after leaving work.

3. Finding the above discrepancies, it was realized that Diaz probably went directly to Buenos Aires; he could have taken the train. The train originating in Zapala passes through Bahia Blanca at 6:15 a.m. (the newspaper having come out at 2:45 a.m.), though it is often behind schedule. During the investigation, Train 142 making this run passed through Bahia Blanca at 7:07, arriving at Buenos Aires at 4:10 p.m.

4. The records of the hospital guard show that Diaz arrived there at 5:30 p.m., not 4:15.

5. Psychological assessments of Diaz found these characteristics, among others: rich imagination, quick intelligence (but without depth), inclination to exaggerate, good memory, occasional use of poor judgment, and maladjusted personality.

We think that under these circumstances we have enough sound arguments of the inauthenticity of the episode, and are able to consider the case a hoax, made up by the witness himself.

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Notice

We have recently begun to print the *Bulletin* on our own offset press. Because of the limitation of the size of negatives which can be used, we have reduced the size of the *Bulletin* but have increased the page count from 6 pages to 8.

There is a possibility that other changes may be made in the future, and Headquarters hopes that the membership will bear with us in this matter. The press, which was purchased at a great savings, came with a considerable amount of paper so that we have already saved considerable money in printing forms, etc.

Beginning with the September issue, the type size will be larger. We would like to hear from the membership with comments and suggestions, but bear in mind that we cannot accommodate the wishes of all.

(Analysis - Continued from Front Cover)

the edges of an object. It can also aid in studies of the brightness distributions on surfaces of an object. In certain circumstances brightness distributions may be relatable to three-dimensional characteristics of the surfaces. These circumstances are:

a) When the "light" is traveling through an object, the amount of light that gets through can be related to three-dimensional size (thickness) if the physical mass density of the object is known as a function of position within the object. Certain translucent materials can be analyzed with visible light photography in this way. When the film is exposed by light which is either generated by an object (a source) or by light which is reflected from the surface, there is no easy way to relate the relative brightnesses (or photographic densities) to three-dimensional properties (e.g., thickness, mass density) or the object. A flat piece of paper illuminated by a spot of light could have a brightness distribution similar to that of a sphere illuminated by a very distant point source, during certain circumstances.

b) When light is generated by an object, if it is already known how the light is generated over the surface or within the volume of the object, it may be possible to estimate three-dimensional characteristics of the surface seen by the camera.

c) When the object only reflects light, it may be possible to estimate three-dimensional characteristics of the object if one already knows how the surface reflectivity varies from point to point on the surface and if one also knows exactly how the object is illuminated. In many UFO photo cases it is possible to determine how the object is illuminated, but it is not possible to know just how the surface reflectivity varies. Also one should note that surface reflectivity is a characteristic of a material and of the surface of the material and of the angle of illumination relative to the surface and relative to the observation angle.

d) During some recent photographic testing of conventional geometric shapes, such as, discs; spheres; squares; etc., it was possible to color-contour the natural densities of the images and relate the density distribution (of colors) to their physical shape. The test was successful in both natural lighting and controlled (source) lighting conditions. Severe problems were encountered when artificial light from some multiple directions was employed.

Normally a spherically-shaped image that is photographed in a daylight mode will result in color-contouring densities that are brighter (white to blue) in the center and darker (green/red) at the periphery due to the image's natural shape. Thus, in some cases, reflectivities do not characterize materials or three-dimensionality. Much information about the nature of the surface of the object is necessary to relate reflectivity or relative brightness of a surface to the object material or to its three-dimensional characteristics.

Another straight-forward output of the software is a profiling cursor. This allows the operator to put onto the output screen a single two-dimensional plot of photographic density (= relative brightness) vs. position along any one of the scan lines in the 512 by 480 format. The two-dimensional plot can be calibrated and read exactly as if a single trace across the object of interest had been made. It can also be used to "calibrate" the color-contour display.

The cursor profiler provides a valuable tool for analyzing a cross-sectional density (grey value) of any portion on a radiographic medium and a graphic density display on a photographic medium. The profile graph indicates the direct amplitude of the video signal (linear mode) or the logarithm of the video signal (logarithmic mode).

When the profiler is turned on, a pattern of four vertical and one horizontal reference lines and a profiler graph appear superimposed on the normal monitor display. The two vertical lines on the left are the sample reference lines. The profile of the image's direct or reflected brightness appearing under this line is sampled and displayed as a cross-sectional graph of densities in radiographic/holographic mediums and as a surface density profile, related to image shape in numerous instances in photographic modes.

A more controversial analysis being attempted by Computer Image Processing is the distant factors applied to UO images in both day light and nocturnal photographs. This phase of computer evaluation addresses one of the great unknown factors in modern photography, image distances (ID) from the camera. If photographic testing combined with new software development, could indeed, supply a close proximation of image distance from the camera, many of the presently unsolvable UO photographs could be evaluated more accurately.

One such approach to this problem is being pursued by GSW, with photographic testing during the past two years.

Our initial testing included common horizontal and vertical edges of buildings, advertisement boards and electrical/telephone poles and wires. Controlled tests were conducted at known (measured) distances, beginning with 10 feet to distances greater than one mile.

The results of this phase of the photographic testing revealed that both vertical (sic) and horizontal edges appear to increase the jaggedness value (AJ) in direct proportion to distance. For example, an edge (sic) at a distance one quarter mile will have a greater degree of edge jaggedness than a similar edge photographed at 10 to 20 feet (a common distance for hoaxed UO images, therefore, a suspended or hard-thrown model).

Since atmospheric and defocus effects can cause an increase in the edge jaggedness on the gray value condition of the edge pixels, additional testing is currently underway to quantitatively define these conditions.